

The Use of the IBM RCC

Remote Communicating Calculator

The IBM-RCC (Remote Communicating Calculator) is a new idea in allowing the engineer and scientist to use what is tried and true in a desk calculator's familiar keyboard layout, and what is modern and new in the powerful computing capabilities of the digital computer. The keyboard tied to the typewriter of the 1050 QUIKTRAN terminal allows for the above-mentioned facilities, a great advance over existing calculators. You have a one-button storage and retrieval capability, a single button depression to indicate up to 20 trigonometric, logarithmic, and arithmetic functions, all callable together with the input variable to be calculated, and a speeding up of your calculations by very simple and powerful logical string capabilities. The RCC has tremendous flexibility for many different repetitive formula evaluations as it can be designated to do an equation or procedure as if the RCC were specially designed for it.

The system has two basic functional capabilities, both defined onto the same keyboard. By means of the standard definition overlay you have a standard desk calculator's arithmetic capability, plus - algebraic, trigonometric, and special functions! - all callable with a single key depression. Additionally, with self-defined overlays and following simple definition rules, you can define an overlay for any of your unique evaluations. Then you can have anyone keying in the variables to evaluate a complex expression.

The IBM-RCC (Remote Communicating Calculator) has two basic modes of operation to correspond to its two functional modes. One is the Desk Calculator mode and the other is the Programmable Desk Calculator mode. The brief description following will enable you to operate the RCC in both its modes. One additional page will describe how you can define your own expressions to the system and set up the plastic overlay to use with them.

Desk Calculator Mode - IBM RCC

The basic philosophy behind the design of the IBM RCC was to provide a calculating device familiar to the human, easy to operate, and with capability beyond any existing calculator on the market today.

This has been done with a desk calculator mode of operation for the IBM Remote Communicating Calculator. The IBM RCC has the capabilities of:

1. Storage and retrieval of variables.
2. One key depression to select operation desired.
3. Use of unary and binary operators in combination to speed up calculations.
4. Operational procedure based on how you "think" out the problem manually for solution.
5. Use of the familiar 10-key keyboard.
6. Quick verification of keyed input before transmission.
7. Hard copy record of input and output information.

Operating Instructions

1. Have DC keymat over keyboard & QUIKTRAN system all set up to operate.
2. Key in the input data, verifying by visual scan of back lite buttons.
3. Depress start when input is correctly set up.
4. When reset button is lighted up, depress RESET button to reset all keys.
5. The system will type the answer when the chain of arithmetic operations is completed. The typing will also occur when intermediate results are stored.
6. Now, branch back to #2 and continue.

To Use Programmed Desk Calculator

Following the simple steps below, after having set up the QUIKTRAN terminal, will permit you to use the PDC.

1. After the system types out +READY in setting up the QUIKTRAN system, tab, then type
LOAD IBMCDC θ *
Upon the next +READY, tab, and type
START (0) θ .
2. With your selected template inserted to indicate the expression to be calculated, you can now key in the variables in any order desired. Note the use of exponents (+ or -) to indicate very large or small numbers.
3. Key in your variables, checking done by means of visual checking of the back lite numbers of the keyboard.
4. Upon verifying the correctness of the input, depress start to transmit.
5. When the reset light turns on, you can key in the next variable after resetting the keyboard.
6. The system will accept the number of variables defined for your equation and then type out the answer.

* The θ sign means hold the Altn Code button down and depress numeric 5 key at same time. Then release both.

Defining An Equation for PDC Operation
of the
IBM Remote Communicating Calculator

In order to define your unique equation into the IBMRCC system follow the instructions below. This will give you its advantages of simplicity and ease of operation.

1. After the QUIKTRAN datacenter connection is established and the terminal typewriter is set up to go, hit the tab key and then type LOAD (IBMRCC.) θ *
2. Following a response, terminating in +READY, tab, then type in START (0) θ .
3. The system will always respond with a message terminating in +READY, upon which you will type in NO(6) = 3. This means that the number (NO) of variables in equation #6 ($S = X + Y + E$) is 3.
4. Following the usual +READY, type 6, tab, $X = \text{STORE (9)} \theta$. This means that X is to be identified by storage button #9 on the keyboard. 6 identifies the 1st statement for equation #6.
5. Following the procedure of step #4, type the definitions for Y & E one after the other. Therefore, $Y = \text{STORE (8)} \theta$ and $E = \text{STORE (7)} \theta$ are the next two lines.
6. After tabbing and the +READY appears, type in $S = X + Y + E \theta$. This enters the equation into the system. Note that all subroutine capability of the FORTRAN language can be used in the expression.
7. After the +READY & tab, indicate to the system the result desired by typing RESULT = S θ .
8. Terminate by typing, - after tabbing - , GO TO 99 θ .
9. After preparing your template, insert it over the keyboard and type START (0) θ . You are ready to utilize the benefits of a specially-designed-for-your-benefit calculator.

Your template should have the keymat code 6 showing; all others should be cut off. Other equation nos. would have the corresponding keymat code (S) showing.

The total of your typing should appear as the following:

cc NO (6) = 3 must equal number of variables in equation
6 X = STORE (9) equal button numbers on keyboard to identify variables.
Y = STORE (8)
E = STORE (7)

these two numbers must be equal, and also equal
to the keymat identification.

S = X + Y + Z equation to be evaluated

RESULT = S

GO TO 99

Caution: After each addition of new expression (into the system) the
sequence save 0 must be given. Otherwise the new equation
definition is lost the next time IBM RCC is loaded.

The keymat for the above example would look like this:

* 0 means EOB, holding down the Altn. code key at the same time as
depressing the number 5 key of the typewriter keyboard.